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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER	
WON, MICHAEL YOUNG	

ART UNIT	PAPER NUMBER
2155	

DATE MAILED: 10/03/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/584,259	NOVAES ET AL.	
	Examiner	Art Unit	
	Michael Y. Won	2155	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *17 July 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *50-53,56,57,59,61-63,66-69,72-74,76-81,84-86 and 88-90* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *50-53,56,57,59,61-63,66-69,72-74,76-81,84-86 and 88-90* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. This action is in response to the amendment filed July 17, 2006.

2. Claims 50, 56-57, 59, 66, 72-74, 78, and 84-86 have been amended and claims 54-55, 60, 70-71, 75, 82-83, and 87 have been cancelled.

3. Claims 50-53, 56-57, 59, 61-63, 66-69, 72-74, 76-81, 84-86, and 88-90 have been examined and are pending with this action.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000.

Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

4. Claims 50-53, 56-57, 59, 61-63, 66-69, 72-74, 76-81, 84-86, and 88-90 are rejected under 35 U.S.C. 102(e) as being anticipated by Snaman, Jr. et al. (US 6,243,744 B1).

INDEPENDENT:

As per ***claim 50***, Snaman, Jr. teaches a method of managing processing groups of a shared nothing distributed computing environment, said method comprising:

requesting via a request by a prospective member to join a processing group of a shared nothing (implicit: see col.6, line 43: "quorum disk") distributed (see col.13, lines 62-65: "distributed system") computing environment (implicit: col.3, line 67: "attempts to join" and col.4, line 42: "wishing to join"), said request including a sequence number indicating a version of the processing group (see col.4, lines 1-2: "generation number" & lines 41-44: "generation indicator");

determining whether the prospective member can join the processing group, said determining employing the sequence number, wherein the determining comprises comparing by said prospective member the sequence number in the request with a current group sequence number to determine if the join of the prospective member to the processing group should continue (see col.3, line 67-col.4, line 7; col.4, lines 41-47; and col.13, lines 4-10);

joining the processing group by the prospective member, in response at least in part to the determining indicating that the prospective member can join the processing group (see col.4, lines 4-7 & 44-46 and col.13, lines 17-21); and

wherein the joining comprises automatically reinitializing state of the prospective member (see col.13, lines 15-17) responsive to the comparing indicating that the sequence number in the request is less than the current group sequence number (see col.3, line 67-col.4, line 7; col.4, lines 41-47; col.7, lines 51-56; and col.13, lines 4-10), the reinitializing making a state of the prospective member consistent with a state of an existing member of the processing group (see col.12, line 66-col.13, line 17 and col.13, lines 21-23), and thereafter, proceeding with the joining by the prospective member (implicit: see col.6, lines 65-67; col.7, lines 61-67).

As per ***claim 59***, Snaman, Jr. teaches a method of managing processing groups of a shared nothing distributed computing environment, said method comprising:

joining a prospective member to an inactive processing group of a shared nothing (implicit: see col.6, line 43: "quorum disk") distributed computing environment (see col.3, lines 36-49);

comparing a sequence number of the processing group with a sequence number of the prospective member (see col.3, line 67-col.4, line 7; col.4, lines 41-47; and col.13, lines 4-10);

updating the sequence number of the processing group, in response to the comparing indicating a particular difference (see col.4, lines 15-18, lines 29-31, lines 38-40, & lines 52-57 and col.13, lines 15-17 & lines 21-23);

determining whether a quorum of members has joined the processing group (see col.4, lines 24-29);

setting the sequence number of the processing group, in response to the determining indicating a quorum of members has joined the processing group (see col.4, lines 29-31 & 38-40);

initiating activation of the processing group, in response to the setting (see col.3, lines 49-54); and

wherein the initiating activation comprises:

obtaining by a member of the processing group having a sequence number lower than the sequence number of the processing group a copy of group state (see col.13, lines 15-17) associated with the sequence number of the processing group (see col.3, line 67-col.4, line 7; col.4, lines 41-47; col.7, lines 51-56; and col.13, lines 4-10); and

reinitializing the member using the copy of group state (see col.12, line 66-col.13, line 17 and col.13, lines 21-23).

As per ***claim 66***, Snaman, Jr. teaches a system of managing processing groups of a shared nothing distributed computing environment, said system comprising:

a request by a prospective member to join a processing group of a shared nothing (implicit: see col.6, line 43: "quorum disk") distributed computing environment (implicit: col.3, line 67: "attempts to join" and col.4, line 42: "wishing to join"), said request including a sequence number indicating a version of the processing group (see col.4, lines 1-2: "generation number" & lines 41-44: "generation indicator");

means for determining whether the prospective member can join the processing group, said means for determining employing the sequence number, wherein the means for determining comprises means for comparing by said prospective member the sequence number in the request with a current group sequence number to determine if the join of the prospective member to the processing group should continue (see col.3, line 67-col.4, line 7; col.4, lines 41-47; and col.13, lines 4-10);

means for joining the processing group by the prospective member, in response at least in part to the determining indicating that the prospective member can join the processing group (see col.4, lines 4-7 & 44-46 and col.13, lines 17-21); and

wherein the means for joining comprises means for automatically reinitializing state of the prospective member (see col.13, lines 15-17) responsive to the means for comparing indicating that the sequence number in the request is less than the current group sequence number (see col.3, line 67-col.4, line 7; col.4, lines 41-47; col.7, lines 51-56; and col.13, lines 4-10), the reinitializing making a state of the prospective member consistent with a state of an existing member of the processing group (see col.12, line 66-col.13, line 17 and col.13, lines 21-23), and thereafter, proceeding with

the joining by the prospective member (implicit: see col.6, lines 65-67; col.7, lines 61-67).

As per ***claim 74***, Snaman, Jr. teaches a system of managing processing groups of a shared nothing distributed computing environment, said system comprising:

means for joining a prospective member to an inactive processing group of a shared nothing (implicit: see col.6, line 43: "quorum disk") distributed computing environment (see col.3, lines 36-49);

means for comparing a sequence number of the processing group with a sequence number of the prospective member (see col.3, line 67-col.4, line 7; col.4, lines 41-47; and col.13, lines 4-10);

means for updating the sequence number of the processing group, in response to the comparing indicating a particular difference (see col.4, lines 15-18, lines 29-31, lines 38-40, & lines 52-57 and col.13, lines 15-17 & lines 21-23);

means for determining whether a quorum of members has joined the processing group (see col.4, lines 24-29);

means for setting the sequence number of the processing group, in response to the determining indicating a quorum of members has joined the processing group (see col.4, lines 29-31 & 38-40);

means for initiating activation of the processing group, in response to the setting (see col.3, lines 49-54); and

wherein the means for initiating activation comprises:

means for obtaining by a member of the processing group having a sequence number lower than the sequence number of the processing group a copy of group state (see col.13, lines 15-17) associated with the sequence number of the processing group (see col.3, line 67-col.4, line 7; col.4, lines 41-47; col.7, lines 51-56; and col.13, lines 4-10); and

means for reinitializing the member using the copy of group state (see col.12, line 66-col.13, line 17 and col.13, lines 21-23).

As per ***claim 78***, Snaman, Jr. teaches an article of manufacture comprising:

at least one computer usable medium having computer readable program code logic to manage processing groups of a shared nothing (implicit: see col.6, line 43: "quorum disk") distributed computer environment (see col.10, lines 57-65), the computer readable program code logic comprising:

a request by a prospective member to join a processing group of a shared nothing distributed computing environment (implicit: col.3, line 67: "attempts to join" and col.4, line 42: "wishing to join"), said request including a sequence number indicating a version of the processing group (see col.4, lines 1-2: "generation number" & lines 41-44: "generation indicator");

determine logic to determine whether the prospective member can join the processing group, said determining employing the sequence number, wherein the determining comprises comparing by said prospective member the sequence number in the request with a current group sequence number to determine if the join of the

prospective member to the processing group should continue (see col.3, line 67-col.4, line 7; col.4, lines 41-47; and col.13, lines 4-10);

join logic to join the processing group by the prospective member, in response at least in part to the determining indicating that the prospective member can join the processing group (see col.4, lines 4-7 & 44-46 and col.13, lines 17-21); and

wherein the join logic comprises automatically reinitialize logic to automatically reinitialize state of the prospective member (see col.13, lines 15-17) responsive to the comparing indicating that the sequence number in the request is less than the current group sequence number (see col.3, line 67-col.4, line 7; col.4, lines 41-47; col.7, lines 51-56; and col.13, lines 4-10), the automatic reinitialize logic making a state of the prospective member consistent with a state of an existing member of the processing group (see col.12, line 66-col.13, line 17 and col.13, lines 21-23), and thereafter, proceeding with the joining by the prospective member (implicit: see col.6, lines 65-67; col.7, lines 61-67).

As per ***claim 86***, Snaman, Jr. teaches an article of manufacture comprising:

at least one computer usable medium having computer readable program code logic to manage processing groups of a shared nothing (implicit: see col.6, line 43: "quorum disk") distributed computer environment (see col.10, lines 57-65), the computer readable program code logic comprising:

join logic to join a prospective member to an inactive processing group of a shared nothing distributed computing environment (see col.3, lines 36-49);

compare logic to compare a sequence number of the processing group with a sequence number of the prospective member (see col.3, line 67-col.4, line 7; col.4, lines 41-47; and col.13, lines 4-10);

update logic to update the sequence number of the processing group, in response to the comparing indicating a particular difference (see col.4, lines 15-18, lines 29-31, lines 38-40, & lines 52-57 and col.13, lines 15-17 & lines 21-23);

determine logic to determine whether a quorum of members has joined the processing group (see col.4, lines 24-29);

set logic to set the sequence number of the processing group, in response to the determining indicating a quorum of members has joined the processing group (see col.4, lines 29-31 & 38-40 and col.9, lines 13-27);

initiate logic to initiate activation of the processing group, in response to the setting (see col.3, lines 49-54); and

wherein the initiate logic comprises:

obtain logic to obtain by a member of the processing group having a sequence number lower than the sequence number of the processing group a copy of group state (see col.13, lines 15-17) associated with the sequence number of the processing group (see col.3, line 67-col.4, line 7; col.4, lines 41-47; col.7, lines 51-56; and col.13, lines 4-10); and

reinitialize logic to reinitialize the member using the copy of group state (see col.12, line 66-col.13, line 17 and col.13, lines 21-23).

DEPENDENT:

As per ***claims 51, 67, and 79***, which depend on claim 50, 66, and 78, respectively, Snaman, Jr. teaches of further comprising updating state associated with the processing group (implicit: see col.6, lines 65-67 and col.7, lines 61-67), in response to the request, said updating providing the current group sequence number (see col.13, lines 15-23).

As per ***claims 52, 68, and 80***, which depend on claim 51, 67, and 79, respectively, Snaman, Jr. teaches of further comprising quiescing activity that may affect the state prior to said updating (see col.13, lines 36-39).

As per ***claims 53, 69, and 81***, which depend on claim 50, 66, and 78, respectively, Snaman, Jr. further teach wherein the determining specifies that the join should continue if the compare indicates that the sequence number in the request is less than the current group sequence number, otherwise the join should not continue (see col.3, line 67-col.4, line 7; col.4, lines 41-47; col.7, lines 51-56; and col.13, lines 4-10).

As per ***claims 56, 72, and 84***, which depend on claim 50, 66, and 78, respectively, Snaman, Jr. teach of further comprising determining an activity status of the processing group prior to the reinitializing, wherein the reinitializing is performed if the processing group is active (see col.9, lines 17-27 and col.10, lines 10-15).

As per ***claims 57, 73, and 85***, which depend on claim 50, 66, and 78, respectively, Snaman, Jr. further teach wherein the joining further comprises updating the current group sequence number (see col.13, lines 15-23).

As per ***claims 61, 76, and 88***, which depend on claims 59, 74, and 86, respectively, Snaman, Jr. further teaches wherein activation of the processing group comprises updating the sequence number of the processing group (see col.9, lines 17-25 and col.13, lines 10-15).

As per ***claims 62, 77, and 89***, which depend on claims 61, 76, and 88, respectively, Snaman, Jr. further teaches wherein the updating of the sequence number of the processing group comprises updating the sequence number, in response to there being a majority of members in the processing group (see Fig.3, steps 84-86; col.9, lines 16-27; and col.10, lines 10-15).

As per ***claims 63 and 90***, which depend on claims 59 and 86, respectively, Snaman, Jr. further teaches wherein a member comprises a distributed synchronous transaction system (see col.13, lines 62-65).

Response to Arguments

5. Applicant's arguments filed July 17, 2006 have been fully considered but they are not persuasive.

A. Applicant(s) argue that because U.S. Pat. 6,243,744 (herein referred to as Snaman, Jr.) teach a shared quorum disk "the computing environment of Snaman is other than a shared nothing computing environment".

In response to A. above, it is the teaching of the "quorum disk" that in fact teaches that the system of Snaman, Jr. is a shared nothing computing environment. It

is well known in the art that a shared nothing computing environment is a computing environment wherein applications cannot be distributed across multiple nodes. As such, the reason that it is possible for a node to take over running an application when the active node fails in a shared nothing computing environment, is because all the nodes in the cluster are connected to a shared storage mechanism (quorum disk). In fact, quorums are only used in a shared nothing environment.

Quorum is necessary in a shared nothing clustering environment so that it is able to tell which node is active and which node or nodes are in stand by (to maintain consistent functionality), and also so that when failure occurs, only the partition that owns the quorum remains running the application (to maintain data consistency). The fact that all the nodes share a quorum disk does not teach away from a shared nothing computing environment but rather teaches of a shared nothing computing environment.

B. Applicant(s) argue that Snaman "fails to uncover any discussion of reinitializing sate of the prospective member".

In response to B. additional reference locations have been provided to better teach this limitation (see rejections above).

6. For the rejection set forth and the reasons above, all remaining dependent claims remain rejected.

Conclusion

7. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael Y. Won whose telephone number is 571-272-3993. The examiner can normally be reached on M-Th: 7AM-5PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Saleh Najjar can be reached on 571-272-4006. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Michael Won

September 18, 2006

SALEH NAJJAR
SUPERVISORY PATENT EXAMINER